

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A solid-state imaging device comprising:

each pixel
a plurality of pixels, including a light-sensitive portion for photoelectrically converting incident light, a transfer gate for transferring a charge stored in said light-sensitive portion, a resettable detection capacitor for storing said charge transferred from said transfer gate, and a selection switch for outputting a charge of said detection capacitor according to ~~of~~ a selection signal;

a charge amplifier for converting to a voltage a charge of said detection capacitor ~~charge~~, which is outputted from the pixels[[],]; and

a correlated double sampling circuit for obtaining a voltage difference between a reset ~~level~~ voltage and a detected ~~level~~ voltage converted by the charge amplifier,

voltage
wherein said reset level is converted from a charge of the detection capacitor when being reset at reset timing, and said detected level is converted from a charge of the detection capacitor when a charge stored in the light-sensitive portion is transferred to the reset detection capacitor, following to the reset timing.

Claim 2 (Original): The solid-state imaging device according to claim 1, wherein said charge amplifier is a capacitive feedback-type impedance conversion circuit.

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Claim 3 (Currently Amended): The solid-state imaging device according to claim 1, wherein said charge amplifier converts to ~~[[a]]~~ the reset voltage a reset level of said detection capacitor by said selection ^Switch transitioning to ON, and said detection capacitor being connected to an input of said charge amplifier, and thereafter, converts to ~~a detection signal~~ the detected voltage said charge of the detection capacitor, ~~which when the charge stored in the light-sensitive portion is~~ [[was]] transferred to said detection capacitor ~~from said light-sensitive portion~~ by said transfer gate transitioning to ON.

Claim 4 (Currently Amended): A solid-state imaging device comprising:
each pixel
a plurality of pixels, [^]including a light-sensitive portion for photoelectrically converting incident light and storing a charge, a reset gate, connected to said light-sensitive portion, ~~[[and]]~~ for depleting said light-sensitive portion by becoming conductive in response to a reset signal, and a transfer gate, connected to said light-sensitive portion, for outputting a charge, which is stored in said light-sensitive portion after being depleted, by becoming conductive in a response to a selection signal;

a charge amplifier, connected to said pixel, for converting said outputted charge to a voltage; and

a corrected double sampling circuit for sampling and holding an output voltage of said charge amplifier,

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wherein a differential voltage between a reset level which said charge amplifier outputs when being reset, and a detection level, which said charge amplifier outputs in accordance with [[a]] the charge outputted from said pixel, is outputted from said correlated double sampling circuit.

Claim 5 (Original): The solid-state imaging device according to claim 4 wherein said light-sensitive portion is formed by a second conductive-type cathode region, which is formed at a prescribed depth inside a first conductive-type semiconductor region, and

said reset gate is a MOS-type transistor, which is formed by said cathode region, a reset gate electrode formed on said first conductive-type semiconductor region, and a second conductive-type drain region, which is formed inside said first conductive-type semiconductor region, and which has a higher concentration than said cathode region.

Claim 6 (Original): The solid-state imaging device according to claim 5, wherein said transfer gate is a MOS-type transistor, which is formed by said cathode region, a transfer gate electrode formed on said first conductive-type semiconductor region, and a second conductive-type output region, which is formed inside said first conductive-type semiconductor region, and which is connected to an input of said charge amplifier.

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Claim 7 (Currently Amended): The solid-state imaging device according to claim [[4]]5, wherein ~~said first conductive-type semiconductor region is formed inside a second conductive-type well region, and is controlled such that a region directly beneath said cathode region of said well region is depleted~~ when said light-sensitive portion is reset.

Claim 8 (Currently Amended): The solid-state imaging device according to claim [[5]]7, wherein said first conductive-type semiconductor region is a well region formed inside a second conductive-type [[well]] region, and ~~is controlled such that~~ a region directly beneath said cathode region of said well region is controlled to be depleted.

Claim 9 (Original): The solid-state imaging device according to claim 4, wherein said reset gate maintains a quasi-conductive state while said light-sensitive portion stores a photoelectrically-converted charge.
